

Book Reviews

Strontium Comes of Age

Strontium Metabolism. Proceedings of the International Symposium, held at Chapelcross, Glasgow and Strontian, 1966. Edited by J. M. A. Lenihan, J. F. Loutit, and J. H. Martin. (Pp. 354+xiii. 84s. London: Academic Press. 1967.

Strontium was a neglected element until its presence in the fall-out from nuclear explosions in the form of strontium-90, the long half-life of this isotope, the nature of its radiation, and its power to be deposited in the skeleton brought it notoriety. In the early 1960s interest in the physiology of strontium was at its height and its similarity to calcium attracted the interest of everyone working on calcium metabolism.

When an element forms the subject of a symposium it may be said to have come of age, scientifically speaking, and on this basis strontium came of age at Chapelcross in Scotland in May 1966. At this meeting participants learned, many of them for the first time, that strontium had been named after the remote Argyllshire village of Strontian, and a visit to this village, where strontiate was first discovered, constituted the climax of the meeting.

This volume is opened by W. V. Mayneord, who tells the little-known story of the new alkaline earth which was brought to Edinburgh from a lead mine in Strontian in the year 1787 to be examined by Adair Crawford (a physician) and William Cruickshank (a surgeon). Professor Andrew Kent reviews the historical aspects of the development of strontium chemistry at the

beginning of the nineteenth century, and Professor G. A. P. Wyllie reviews the history of the lead mines, discovered in 1722, where strontium was first found. The symposium proper consisted of 38 papers on fall-out studies, tracer studies in man, tracer studies in animals, and on ways of modifying strontium metabolism. C. L. Comar, one of the early workers in the field, reviews the principles of strontium metabolism, R. Scott Russell and others describe the transfer of strontium-90 through food chains, and J. F. Loutit reports on the concentration of strontium-90 in fall-out in human bone. Other papers in the section include one by the Russians, V. A. Knizhnikov and A. N. Marei. They showed that the daily intake of strontium-90 with diet in the U.S.S.R. was higher than in the United States, but that the level of bone contamination was much the same in the two countries. They suggested that fall-out strontium in the U.S.S.R. was deposited in insoluble form on grain crops, whereas in the United States it was present in and easily absorbed from the milk and dairy foods. They also announced the controversial finding that strontium-90 in human bone was inversely related to the fluorine content of the drinking-water.

Tracer studies in man included a paper by

Herta Spencer and her colleagues on the influence of dietary and hormonal factors on radiostrontium metabolism in which they said that addition of calcium to the diet had no consistent effect on radiostrontium absorption, but that the addition of phosphate decreased it. Conversely, the addition of stable strontium to diets did not decrease the absorption of radiostrontium. In most respects radiostrontium metabolism was influenced by hormones and other substances in the same directions as calcium metabolism. The section on tracer studies in animals includes papers on the absorption of strontium by guinea-pigs, its transfer across the maternal placenta and through breast milk, and its concentration in ram sperm D.N.A. Finally, reports on attempts to prevent the absorption or increase the removal of radiostrontium from the body include an excellent review by D. Waldron-Edward and colleagues on their remarkable finding that alginates selectively block the absorption of radiostrontium.

There is a great deal of interest in this volume, which will serve as a reference work for the foreseeable future. Although the problems of strontium fall-out may not be as pressing as they were a few years ago, it is as well that existing knowledge on the subject should have been so competently assembled by the organizers and editors of this symposium.

B. E. C. NORDIN.

Heart Transplant Discussion on Records

Human Heart Transplantation. A recorded discussion between Professor C. N. Barnard and members of his team. (Two L.P. records; 65s. 2d. Royalties to Professor Barnard's Heart Surgery Fund.) London: Decca Record Co. 1968.

Two gramophone records are on sale to the public this week, recording a discussion on heart transplantation between Professor C. Barnard and some of his collaborators. For a medical audience technical problems are discussed on tissue matching, selection of donors and recipients, practical surgical and anaesthetic details, and so forth. To the laity most of this will be incomprehensible and for informed medical listeners it will sound superficial. The challenge is, of course, enormous and in all its facets, practical, technical, and scientific, the miracle is that heart transplantation has been done at all.

In the recording there is a pervading assumption of success, with hints of replacing hearts in hypertension, "myocarditis," diphtheria, and congenital heart disease. All these indications are either highly debatable

or even undiagnosable. Professor Barnard says "many millions can benefit" and that our knowledge of transplantation immunity is "adequate" to go ahead. Success, however, cannot yet be judged until we know the future of the first patient. Is his life, with continuing dependence on drugs, going to be better than could be achieved by ordinary treatment? The longest survivals from renal transplants (? five years) do not encourage the prospect of grafts for congenital heart disease in early infancy. The problems surrounding living donors raise questions that few doctors would wish to face. While we congratulate Professor Barnard on his courage and fantastic technical skill, we hope now that he will wait and see.

These gramophone records may thrill (or terrify) the ignorant, they may raise completely false hopes in the afflicted, but they will not convince any knowledgeable doctor that success has arrived. Saddest of all is too early involvement of public interest in new work and the danger of change in our ethical standards consequent on public discussion. It is doubtful if these records will help either the public or the profession in their concern for the welfare of the sick.

JOHN McMICAEL.

Pathology of the Mast Cell

Mastocytosis and the Mast Cell. By Felix Sagher, M.D., and Zvi Even-Paz, M.B., Ch.B. (Pp. 427+xiv; illustrated. £6 19s. 3d.) Basel: S. Karger. 1967.

The career of the tissue mast cell has been of fascinating interest. Thirty years ago Ehrlich's recognition of the cell in 1877 figured regularly in lectures on "discoveries by medical students," and cases of urticaria pigmentosa, easily diagnosed by the initiated, provided reliable entertainment at clinical meetings. In 1937 Jorpes found heparin in mast cells, and since then they have been shown to form or store a large number of pharmacologically active substances and play a vital role in numerous physiological and pathological processes. Since 1949 systemic involvement in mast cell disease, previously suspected, has been repeatedly confirmed.

Professor Felix Sagher, of Jerusalem, in a succession of important papers, has shown the frequency and extent of skeletal involvement, and has contributed greatly to our knowledge of the pathology of the mast cell. The present monograph, written in conjunction with his colleague Dr. Even-Paz, places